THE MIND-BODY CONNECTION? ATHLETES' PERCEPTIONS OF THE IMPACT OF MENTAL HEALTH ON SPORT PERFORMANCE

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Prevalence of mental health concerns among young adults is high and continues to increase. As a specific subset of young adults, NCAA student-athletes seem to experience these concerns at a similar or greater prevalence than their non-athlete, age-matched peers. Despite the number of college student-athletes who are experiencing mental health concerns, understanding how mental health impacts sport performance has not been robustly studied and has not included the diversity of identities present in the athlete population. Thus, I explored the beliefs of 266 college student-athletes who represented diverse identities and sports regarding how mental health impacts sport performance. Responses were collected using an on-line survey and analyzed using both quantitative and qualitative methods. Overall, as well as by gender, race/ethnicity, and sport type, 96.4% to 100.0% of participants believed that mental health impacts sport performance. From thematic analysis emerged three themes and various subthemes: (a) cognitive disruptions (concentration, confidence, self-talk, motivation, mindset, and decision-making), (b) the stress of being a student-athlete (life impact sport, team factors, sport impacts mental health), and (c) a mind-body connection (mind correlates with body, and mental health symptoms impact sport performance). Post-hoc cluster analysis by demographic and sport-type variables did not reveal clustering; these variables were represented consistently across subthemes. The universality of endorsement and consistent spread of identities across subthemes represent novel findings from which further exploration of the mental health-sport performance connection is warranted.

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CHAPTER 1

INTRODUCTION

Sport performances result from innumerable factors and forces that are internal and external, tangible and untouchable, measurable and not, and operate on a number of temporal scales. Although there has long been acknowledgment that athletes' psychological/mental states may impact sport performance (Basset, 2002; Hill & Hartree, 1920; Triplett, 1898), the relationship between these variables remains largely unexamined and not well understood (Anshel, 2019; Chang et al., 2020; National Collegiate Athletic Association [NCAA], 2017; Reardon et al., 2019). Yet, the relevance of this relationship grows as the prevalence of mental health concerns among athletes is increasingly acknowledged to be high (Gouttebarge et al., 2019; Reardon et al., 2019).

The prevalence of mental health symptoms and disorders among high-level athletes is at least similar to, and might be higher than, what has been found in the general population (Chow et al., 2020; Etzel et al., 2006; Gouttebarge et al., 2019; Rice et al., 2016). In the United States, 20.6% of individuals experience a mental illness, which increases to 29.4% among young adults aged 18-25 years (National Institutes of Mental Health [NIMH], 2021), the age cohort of many high-level athletes. Self-report data from elite athletes around the world reflected symptoms of distress in 19.6% and 15.8% of current and former athletes, respectively, followed by 26.4% and 20.9% for sleep disturbance, 33.6% and 26.4% for anxiety/depression, and 18.8% and 21.1% for alcohol misuse (Gouttebarge et al., 2019; Rice et al., 2016). In samples of NCAA student-athletes and their non-athlete age-matched peers, the similarity in prevalence holds for anxiety and depression cross-sectionally (16.8%-33.2%; Cox et al., 2017; Weigand et al., 2013; Wolanin et al., 2016; Yang et al., 2007; Yang et al., 2014) and longitudinally (31%-48%; Davoren &

Hwang, 2014). Given these data, prevalence of mental health concerns between high-level athletes and non-athletes do appear to be quite similar.

Despite consistent evidence documenting the high prevalence of mental health concerns among high-level athletes, few studies have explored the impact of mental health and mental illness on sport performance. In fact, this relationship is seemingly assumed by researchers, as it is rarely stated directly (e.g., NCAA, 2017), infrequently introduced as rationale for their studies (e.g., Reardon et al., 2019), and sparingly supported with citations (e.g., Reardon, et al., 2019). How mental health may impact sport performance also remains meagerly elucidated at best: *Mental health in elite athletes: International Olympic Committee consensus statement* (Reardon et al., 2019) represents the single example of both consistently stating the connection and consistently citing research that illuminates the impact of mental health on performance. At a practical level, the lack of clarity about, and research on, the mental health-sport performance relationship may contribute to athletes not seeking care or attending to their psychological well-being (Lebrun et al., 2018).

In the vacuum of existing research and clear direction on the subject, theories – Mental Health Model (MHM; Morgan, 1978, 1980, 1985), Individual Zones of Optimal Functioning (IZOF; Hanin, 1978, 1997, 2000), and Resilience (Fletcher & Sarkar, 2012) – can frame the connection between mental health and sport performance. The MHM holds that that "success in sport is inversely correlated with psychopathology" (Morgan, 1985, p. 71) and that psychological characteristics, emotional stability, and mood state all impact performance as well (Morgan, 1985; Raglin, 2001). Empirical research with NCAA Division 1, nationally competitive, and Olympic athletes demonstrated the inverse relationship between sport performance and mood state and psychopathology cross-sectionally and longitudinally (Johnson & Morgan, 1981;

Morgan et al., 1987; Morgan & Johnson, 1977; Morgan & Johnson, 1978; Morgan & Pollock, 1977). The IZOF Model can be used to qualitatively and quantitatively analyze how much of any emotion is facilitative for an athlete's optimal performance. For an optimal performance, the content and intensity of the emotion should fall into the athlete's ZOF, "a tentative optimal range of intensity scores predicting high probability of individually successful performance" (Hanin, 1997, p. 37). The IZOF model has been validated consistently in samples of high-level athletes (Ruiz et al., 2015), including athletes who were taught emotion management skills (e.g., pre-competition routines, imagery, self-talk, energizing techniques, relaxation techniques) to assist entering and staying in their optimal ZOFs (Robazza et al., 2004). Through their study of 12 Olympic champions, Fletcher and Sarkar (2012) established a model of resilience for those who actively seek out challenge: in response to the stressors they encounter, the interaction of an athlete's positive personality, motivation, confidence, focus, and perceived social support determines the nature of cognitive appraisal and meta-cognition. Then, together, cognitive appraisal and meta-cognition "promote facilitative responses in athletes which underpin optimal sport performance" (Fletcher & Sarkar, 2012, p. 19). These psychological traits (e.g., motivation) and mental processes (e.g., appraisal of challenge versus threat) represent access points where mental health may erode facilitative responses, resilience, and ultimately, sport performance. All three psychological explanations may have strengths and limitations in terms of utility and applicability to deeper consideration of how mental health impacts sport performance.

Additionally, lines of neuropsychological research on the psychomotor changes concomitant with depressive symptoms and disorders and, separately, physiological research on the psychobiological state of mental fatigue, provide a window into the etiology and nature of

this impact. Clinical levels of depression have been shown to impact both the cognitive and neuromuscular processes involved in sport performances, and do so by as much as 30% (Sabbe, Hulstijn, et al., 1996; Sabbe, Van Hoof, et al., 1996; Sabbe et al., 1997; Sabbe et al., 1997; White et al., 1997). The increases in reaction time and decreases in velocity of movement seem to worsen with increased cognitive demands (e.g., complexity, accuracy), which could have serious implications for sport performance. Mental fatigue, which involves many of the same subjective, behavioral, and physical experiences as clinical mental illness, has been experimentally shown to impair sport performance, especially endurance performance, through the cognitive framework of perception of effort (Marcora et al., 2009; Van Cutsem et al., 2017).

There are a limited number of qualitative studies conducted with athletes that have directly focused on how sporting environment and performance demands impact mental health, and in the process obliquely shed light on the perceived impact of mental health on performance (Doherty et al., 2016; Lebrun et al., 2018). Both samples of current or former elite athletes who had experienced clinical depression reported an initial ability to maintain their athletic performance, followed by decrements in interest to train and quality of training; decrements in focus and motivation, as well as less enjoyment in training, competition, and sport overall; increasingly negative self-evaluation; and decrements in performance.

Additionally, an increasingly robust line of intervention research that focuses on improving athlete mental health as a way to improve performance further exposes the connection between mental health and sport performance. Early studies regularly concluded that mental health interventions (e.g., Rational Emotive Behavior Therapy (REBT; Ellis, 1957)) improved measured performance (Kerr & Leith, 1993; Wood et al., 2016). Later studies, with expanded interventions (e.g., Mindfulness-Acceptance-Commitment (MAC; Gardner & Moore, 2007)) and

assessments (e.g., Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62; Locke et al., 2011)), drew the same conclusions; that is, improvements in both mental functioning (e.g., statistically significant decreases over time on eating concerns, generalized anxiety, hostility, and substance use; improvements in emotional regulation) were associated with better sport performance (Donohue et al., 2018; Gross et al., 2018). Given that the application of psychological interventions that improve mental health also positively impact sport performance, the unspoken underlying assumption seems to be true: mental health impacts sport performance.

Given the high number of student-athletes who experience mental health concerns or disorders (Cox et al., 2017; Davoren & Hwang, 2014; Weigand et al., 2013; Wolanin et al., 2016; Yang et al., 2007; Yang et al., 2014), studying the relationship of mental health, as an antecedent, to performance should be a natural consideration. Although several long-standing models on psychological factors and sport performance and a more contemporary theory on resilience in athletes provide a much-needed foundation for investigating this question (Fletcher & Sarkar, 2012; Hanin, 1997; Morgan, 1985), researchers have not formally or systematically studied how mental health impacts athletes' sport performances. Further, such research must consider key identities, particularly gender and race/ethnicity, in their sampling to ensure that the voices of athletes who represent historically minoritized groups, which have been routinely left out of previous research on the topic, but often are disproportionately affected by stress and mental health concerns (NIMH, 2021), are considered. Having such information would provide guidance on treatment and might be used to reduce athletes' reluctance to seek help.

Thus, I explored the impact mental health on sport performance using a diverse sample of NCAA Division I student-athletes. This exploration was conducted using a mixed method

design that collected quantitative and qualitative data concurrently, but prioritized qualitative data (Hanson et al., 2005). Specifically, I assessed the a) the percentage of college student-athletes who endorsed the belief that mental health impacts athletic performance, and b) their reasons for why they held (or did not) this belief. I hypothesized that most student-athletes (75% or higher) would endorse the belief, and more female than male student-athletes, and more White than student-athletes of color, would endorse this belief. Given the inductive approach used with the qualitative data, I did not make any specific hypotheses regarding the themes and subthemes that would emerge.

CHAPTER 2

METHODS

Participants

Student-athletes (N = 266; male: *n* = 123, 46.2%; female: *n* = 141, 53.0%; non-binary: *n* = 2, 0.8%) were drawn from a single NCAA Division I athletic department. Regarding race/ethnicity, they identified as White (*n* = 113; 42.5%), Black *(n* = 93*,* 35.0%), Latinx (*n* = 27, 10.2%), Asian/Asian American (*n* = 8, 3.0%), Native American (*n* = 3, 1.1%), and Native Hawaiian/Pacific Islander (*n* = 4, 1.5%); 16 (6.0%) identified as Bi/Multi-racial (6.0%) and 2 (0.8%) preferred to self-identify or not share. Eleven sports were represented: Men's Basketball (*n* = 11; 4.1%), Women's Basketball (*n* = 16; 6.0%), Cross-Country/Track and Field (*n* = 67; 25.2%), Football (*n* = 72; 27.1%), Men's Golf (*n* = 3; 1.1%), Women's Golf (*n* = 7; 2.6%), Women's Soccer (*n* = 28; 10.5%), Softball (*n* = 22; 8.3%), Women's Swimming and Diving (*n* = 24; 9.0%), Women's Tennis (*n* = 6; 2.3%), and Women's Volleyball (*n* = 10; 3.8%).

Instruments

Demographic Information

Participants provided information regarding their sport, gender, and race/ethnicity.

Mental Health and Athletic Performance

Student-athletes indicated (YES/NO) if they "think mental health affects student-athletes' sport performances." If YES, they wrote about "the ways in which you believe mental health can affect a student-athletes' performances." If NO, they described why they "believe that mental health does NOT affect a student-athletes' performances."

Procedure

This study was approved by the researcher's university IRB. As part of their annual mental health screening, which was mandated by their athletic department, student-athletes were provided the option of consenting to allow their screening data (which included the questions for this study) to be used in research. Of the 316 who participated in the mental health screening process, 266 (84.2%) provided consent and are included in this study.

Mental health screening was conducted online via a Qualtrics survey and all student-athletes were sent up to three emails, which included the survey's URL and instructions to complete the screener as required by the athletic department. Emails were sent by the department's Associate Athletic Director for Academics; athletic trainers also sent reminder texts/messages to their teams' student-athletes. Once on the Qualtrics website, student-athletes read instructions regarding the department's mental health screening process and then provided (or did not) consent to have their data used in research. Overall, the screener took approximately 15 minutes to complete. The student-athletes received no compensation for consenting to have their data used for research.

Data Analysis

I used SPSS 27.0 (IBM, 2020) to determine the frequencies of the student-athletes' responses to the first question. Because of the very high prevalence of YES responses, I was not able to use gender, race, nor sport type to make statistical comparisons. Thus, my quantitative data are presented only as frequencies by these demographic categories. The quantitative and qualitative data were not nested, except to explore demographic variables that may have clustered in subthemes after thematic analysis was completed, and integrated at interpretation.

The student-athletes' open-ended responses were analyzed using the inductive, six-stage thematic analytic strategy proposed by Braun et al. (2016). In response to the three questions that underpin Braun et al.'s (2016) guidance, the methodological choices in this study were a) semantic (versus latent); b) inductive (versus deductive); and c) ontological relativism (O'Grady, 2002; concepts and categories that make up the world are context-dependent and thus relative) and epistemological relativism (truth and how we know it is context- and perspective-dependent and thus relative).

The six analytical steps were conducted as such: 1) four data analysts individually scrutinized participants' responses for patterns of words and meaning relevant to overall focus on the study (e.g., ways in which they believe mental health can impact sport performance). Over repeated readings, loose groupings were made by each analyst individually with the goals of summarizing content and capturing repetitions of words. 2) Once they had achieved close knowledge of the data, the analysts inductively identified concrete conceptual codes. Semantic coding was prioritized to reflect the content of the participants' responses rather than the constructs their responses might reflect. Responses routinely matched multiple codes and were associated with all relevant codes, which was consistent with the semantic and relativist priorities of the study. 3) The analysts individually grouped codes into first themes and subthemes. The first three steps took 2-4 hours/analyst. 4) After these first three steps, the analysts met as two separate dyads to review the themes relative to their faithfulness to the participants' original responses, interrogate the conceptual basis of the codes and themes to ensure distinctness and intuitiveness, and combine first themes and subthemes into dyad themes and subthemes. These dyadic meetings took to 2-3 hours. Then, the dyads met twice, repeating the above process. The four met for a total of 4 hours. Finally, during two meetings lasting a total of 2-3 hours, a

"critical friend" challenged and/or confirmed these codes and themes to the end of sufficiency rather than consensus. 5) Once themes were organized formal titles that accurately represented each theme were assigned. 6) Finally, the results and discussion were formally written. Consistent with Papathomas et al.'s (2018) presentation of similar qualitative data obtained from athletes' written responses to open-ended questions, I provided examples of participant responses to further illustrate themes and subthemes.

Establish Trustworthiness

In qualitative research, the concept of trustworthiness replaces those of reliability and validity so that results and conclusions of rigorously conducted qualitative research can be considered academically sound (Shenton, 2004). Trustworthiness is comprised of credibility, transferability, dependability, and confirmability (Shenton, 2004), to which this study attended in the following ways. I used established methods for thematic analysis (Braun et al., 2016) and participants had to purposefully opt-in to the study (and experienced no repercussions for not doing so). The researcher and data analysts were familiar with collegiate sport environments, from being athletes themselves to their work as sport psychology consultants, and engaged in a group reflexivity discussion, which is provided below. Anonymity of responding encouraged the honesty of participants, and peer debriefings throughout the thematic analysis process challenged assumptions by the researcher, data analysts, and critical friend. Results include frequencies and examples to allow for thick description, and for credibility of the study generally and transferability of the results and conclusions specifically. Dependability is addressed through detailed descriptions of procedures and data analysis that inform replication, and the mixed method nature of data collection and analysis. Finally, the researcher and data analysts addressed confirmability by engaging in a group reflexivity exercise, and by routinely reflecting

during analysis and coding on whether their decisions reflected the response itself or deeper inferences based on their biases and training.

Reflexivity Statement

In qualitative research, the subjectivity of the researcher(s) and data analyst(s) can have a number of impacts on the study being conducted, including the way in which the data are interpreted (Sparkes & Smith, 2014). Race, gender, age, and experiences can all influence the way in which research is carried out (Sparkes & Smith, 2014). I chose to write about the identities and experiences of the researcher, data analysts, and critical friend with the intent of acknowledging their influences to the extent possible.

All individuals involved in the study self-identify as white and cisgender, four as women and one as a man. They range in age from mid-20s to late-50s. All have been life-long participants in sports, competing from the recreational to NCAA Division 1 to professional level in individual (e.g., triathlon, swimming) and team (e.g., soccer, volleyball, softball, swimming, cheerleading) sports. All five researchers are practicing psychologists(-in-training), with or receiving training in both sport psychology and mental health interventions. Two of the five have completed additional graduate training, one in kinesiology and sport performance and one in sport psychology. All share the underlying philosophy that mental health is foundational to sport performance success.

These identities, experiences, and trainings helped the researchers understand the potential connection between mental health and sport performance. Specifically, their experiences as athletes helped them relate to the participants in the study who endorsed the belief that mental health impacts sport performance, but may have limited their ability to interpret responses that countered these personal experiences and shared philosophy. Similarly, due to

the thematic analysis of anonymously-provided responses, the researchers' identities of race/ethnicity and gender are the only race/ethnicity and gender context in which they interpreted the responses; any interpretation or related impact based on the identities of the participants was not possible, for better or worse. Further, their existing academic and professional knowledge may have prompted recognition of terms or clustering of ideas that reflect that knowledge, and may limited attention to words or interpretation of ideas in the way high-level athletes who do not have that knowledge used them, meant them, or would have clustered them. It was important not to let latent terms in the fields of psychology and sport psychology preempt the terms present in the responses themselves, and equally important not to infer deeper meanings that are not implied or supported by the response as a whole. Finally, their training likely means they have a different definition or understanding of "mental health" and "emotion" relative to each other, but also relative to high-level athletes who do not have that training. This difference in definitions may impact the interpretation of words or responses that reference symptoms and/or emotions, and again, it was important to maintain acceptance of what participants' responses indicated was mental health to them.

CHAPTER 3

RESULTS

Belief that Mental Health Impacts Sport Performance

Of the 249 student-athletes who answered this question, 243 (97.6%) replied YES. There was little variability in endorsement rates across gender (male: 96.5%, *n* = 113; female: 98.5%, *n* = 134; non-binary: 100%, *n* = 2), race/ethnicity (White: 99.1%, *n* = 109; Athletes of Color = 96.4%, *n* = 140), and sport type (Football: 96.9%, *n* = 64; all other sports: 97.8%, *n* = 185). Participants who chose to self- or not identify race/ethnicity were included in the non-White category. The 6 participants who did not endorse the belief represented 5 sports (Women's Soccer, Football, Men's Basketball, Women's Basketball, Cross-Country/Track and Field); 3 race/ethnicities (White, Black, Bi-/Multi-racial); and were either women or men. The 17 participants who did not answer the question were from 4 race/ethnicities and 6 sports, and split almost evenly between women and men; 8 were football athletes.

Themes

Of the 243 student-athletes who responded YES, 196 (78.7%) provided written answers to explain the ways in which they believed mental health impacts performance. In total, written responses amounted to 2,349 words. The longest response was 110 words, the shortest, 1. Of these 196 responses, 55.1% came from women (*n* = 108), 43.9% from men (*n* = 86), and 1.0% non-binary (*n* = 2); 43.4% from White individuals (*n* = 85) and 56.6% from Athletes of Color (*n* = 111); and 23.0% from Football (*n* = 45) and 77.0% from all other sports (*n* = 151). The 47 athletes who endorsed the belief, but did not explain it were 51.1% women (*n* = 24) and 48.9% men (*n* = 23); 48.9% White individuals (*n* = 23) and 51.1% Athletes of Color (*n* = 24); and 36.2% football players (*n* = 17) and 63.8% athletes from all other sports (*n* = 30). Therefore, the

thematic analysis represents less of the sample than the quantitative data does, but maintains representation of the larger population of athletes at the NCAA Division I institution from the which the sample was drawn.

From the thematic analysis, we identified three higher order themes (Table 1): (a) cognitive disruptions, (b) the stress of being a student-athlete, and (c) a mind-body connection. These themes and conceptual subthemes are described here.

Table 1

Themes, Subthemes, and Sample Responses

Theme	Subtheme	Sample Response (sport)
Cognitive Disruptions	Concentration	"if there are things on our mind, it becomes a distraction" (men's golf)
	Confidence	"have to have confidence in order to do well" (women's golf)
	Self-talk	"if you have negative talk going through your head, it's hard to focus on what's important to you or focus during a race" (swimming and diving)
	Motivation	"lack of motivation and therefore not do well in practices or competitions" (swimming and diving)
	Mindset	"if one does not feel…in a right state of mind it makes playing a sport extremely difficult" (soccer)
	Decision-making	"decision making" (football)
Stress of Being A Student-Athlete	Life Impacts Sport	"or if they are stressed or depressed about outside forces, then the athlete is not going to perform well" (softball)
	Team Factors	"if they are having problems they won't talk to teammates keep to themselves not perform good (sic)" (soccer)
	Sport Impacts Mental Health	"Even though they know what they signed up for when they first came, the process can weigh them down and they can mentally get tired" (football)
Mind-Body Connection	Mind Correlates with Body	"sometimes athletes cannot push their feelings aside and it can affect performance" (cross-country/track and field)
	Mental Health Symptoms Impact Performance	"if athlete is depressed he or she won't play" (football); "anxiety can effect results" (football)

Theme 1: Cognitive Disruptions

This theme captured student-athletes' beliefs that mental health concerns disrupt cognitive processes that are key to, or involved in, sport and sport performance. The disrupted cognitive processes, or subthemes, were: concentration, confidence, self-talk, motivation, mindset, and decision-making.

Concentration

Concentration was the most frequently identified cognitive disruption, which the student-athletes said could be experienced either situationally or generally. For example, a male track athlete stated that "lose focus on task = lesser performance," whereas a soccer player wrote "one may have a lot on their mind so they are not focused on their sport." Also captured was the distraction that mental health concerns present to athletes: "it'll be on their mind the whole time" (men's basketball). The fact that a loss of concentration could decrease performance parallels Fletcher and Sarkar's (2012) theory of resilience in athletes, where concentration is hypothesized to lead to resilience and optimal performance.

Confidence

Two other cognitive processes that student-athletes reported are disrupted are confidence and self-talk, which were stated differently by participants and thus conceptualized separately by researchers. Confidence emerged as a cognitive state that was either present or not (e.g., "not being confident enough to play ball," soccer). The subtheme of confidence again matches an access point for mental health to disrupt sport performance drawn from a theory on resilience in athletes (Fletcher & Sarkar, 2012).

Self-Talk

Compared to confidence, self-talk was presented as a more active cognitive process that could reflect, or impact, confidence. This active self-talk ranged from what athletes tell themselves (e.g., "degrading yourself…," softball) to the negative comparisons they make to others (e.g., "lack of confidence, anxiety, comparing ones self to others," swimming and diving). In qualitative research on how sport impacts mental health, athletes who experienced clinical depression also reported having negative self-talk and making comparisons that became more global negative self-evaluations (Doherty et al., 2016).

Motivation

Student-athletes indicated that mental health concerns could prompt loss of motivation toward training and competing ("it affects the way how (*sic*) the motivation is during practice and competition," tennis) and whether athletes might even want to continue to participate in their sport ("They either can like what they're doing or they are out there doing their sport just to do it. It's not fun to them anymore," men's basketball). The idea that decreased motivation results from mental health concerns and subsequently would lead to lower levels of sport performance is consistent with existing theory (Fletcher & Sarkar, 2012) and research (Doherty et al. 2016; Lebrun et al., 2018).

Mindset

Student-athletes used a variety of terms – "attitude," "mental toughness," "head space," "readiness to play," and "mindset" – to reflect athletes' mental set toward, or readiness to, practice, train, compete, and/or perform. Example responses include "when you don't feel right within yourself and your head isn't in the right place, it will show" (softball); "mindset is everything in running, a poor mindset can make the best runner look like one of the worst"

(track); and "it can affect their… mental toughness while in a game" (football). The influence of mindset on performance is similarly represented in the "positive personality characteristics" in Fletcher and Sarkar's (2012) theory of resilience. Further, a tennis player shared that "it is essential to be calm and calm (sic) in order to give your best." Both resilience theory and MHM theorize emotional stability to be inversely related to performance (Fletcher & Sarkar, 2012; Morgan, 1985), whereas the IZOF model theorizes it to be important to maintaining the optimal amount of any emotion to facilitate an optimal performance (Hanin, 1997).

Decision-Making

Although the responses that informed this subtheme were short (i.e., simply writing "decision-making"), this term was offered specifically and distinctly multiple times, suggesting commonality among the student-athletes. Decision-making represents the cognitive process to identify a decision and related solutions, and choose the desired solution (e.g., action), which could be disrupted due to a loss of concentration, confidence, or motivation, or alternatively, overthinking. The connection between a disruption in decision-making and decreased performance is encapsulated in the cognitive appraisal and meta-cognition step of resilience in athletes (Fletcher & Sarkar, 2012).

Theme 2: Stress of Being a Student-Athlete

In contrast to Theme 1, this theme captures broader impacts than cognitive disruptions and represents the likely bi-directional relationship between mental health and sport performance.

Life Impacts Sport

In this subtheme, student-athletes identified how sport performance is impacted by

"outside problems [that] travel onto the feild (sic)" (football). Responses in this subtheme reflected the challenge or inability to compartmentalize personal problems and mental health concerns, and often reflected a resulting concomitant inability to concentrate or focus on sport or sport performance. For example, a male basketball player wrote "if a student athlete is worried about his life outside of his sport he will not be able to focus on his performance." Certainly, this subtheme parallels previously reported athlete experiences about the challenges in coping with broader life stressors and how these may decrease sport performance (Doherty et al., 2016; Lebrun et al., 2018), and research focusing on life stressors as antecedents of mental health concerns and mental illness (Gulliver et al., 2012; Küttel & Larsen, 2020; Rice et al., 2016; Stokowski et al., 2020).

Team Factors

Some student-athletes also reflected on how team factors are involved in the connection between mental health concerns and sport performance. Participants' responses described the involvement of team in a variety of ways, including that individual athletes' mental health could impact their teammates (e.g., "…always being down causing it to carry onto another teammate," softball). Reciprocally, they discussed how the team environment could affect their mental health:

> Volleyball is a very mental game, and it is important to establish a positive, encouraging, and accepting culture across all levels within the team. Otherwise, a lot of those distractions do play a role on how we see the game. (volleyball)

The relationship between the team environment and athlete mental health aligns with research on the etiology of mental health concerns stemming from the sport environment (Arnold & Fletcher, 2012; Cresswell & Eklund, 2007; Hughes & Leavey, 2012; Stokowski et al., 2020).

Finally, some student-athletes reported that a lack of support from teammates could

exacerbate their existing mental health concerns. A female softball player reported that "I've been criticized for looking sad/upset while battling depression with no actual concern for my well-being." This idea supports the importance of social support within athletes' environments and how its presence can contribute to increases in resilience, which is tied to sport performance (Fletcher & Sarkar, 2012).

Sport Impacts Mental Health

Whereas most responses addressed the relationship of mental health to sport performance, some participants described how the stress of being a student-athlete broadly, and bad performances specifically, can be the source of mental health concerns. For example, a football player indicated that a "Student athlete may be consumed by the pressure of everything and begin to crumble under the the (sic) weight of all their responsibilities," whereas a male track athlete honed in on bad performance specifically: "I feel like if an athlete is not performing to their standards it can affect one's mental health." This idea that sport performance and stressors within the sport environment can affect athletes' mental health parallels research regarding the etiology of mental health concerns experienced by high-level athletes (Arnold & Fletcher, 2012; Bär & Markser, 2013; Creswell & Eklund, 2007; Doherty et al., 2016; Gouttebarge et al., 2019; Hammond et al., 2013; Lebrun et al., 2018; Rice et al., 2016; Stokowski et al., 2020). Despite the vast majority of existing research focusing on this etiological direction, in this sample, perhaps because of the wording of the open-ended question, only 7 responses (3.6%) reflected this orientation.

Theme 3: Mind-Body Connection

The mind-body connection theme reflects responses that stated a direct connection between mind and body as the mechanism through which mental health impacts sport

performance. The two subthemes reflect the specific versions of this connection.

Mind Correlates with Body

Many student-athletes conceptualized this connection broadly, like a female track athlete who said "mind correlates with body" or soccer player who reported a belief that "anything going on mentally is reflected on the field." Both positive and negative mind-body connections were reflected in the student-athletes' responses. For example, a female track athlete wrote "if you feel good you do good if you feel small weak or not good enough that is how you will perform," whereas multiples athletes expressed this idea the same way: "bad mental health means bad performance." In this subtheme, student-athletes seem to be saying that wherever the mind goes, the body follows, and that can be in both positive and negative directions. The idea of a directional mind-body connection has been identified in both the MHM and the IZOF Model (Hanin, 1997, 2000; Morgan, 1985), and in previous reports by high-level athletes experiencing clinical depression, and research in neuropsychology and physiology, mental health concerns ultimately decrease performance (Doherty et al., 2016; Lebrun et al., 2018; Sabbe et al., 1999; Van Cutsem et al., 2017; White et al., 1997). Conversely, those responses that outline a positive correlation support the findings of intervention research that has previously found improved performances concomitant with improved mental health (Donohue et al., 2018; Gross et al., 2018).

Mental Health Symptoms Impact Performance

The responses that reflected the second subtheme were more specific about symptoms of mental health concerns or disorders (e.g., feelings of anxiety or depression, changes in eating and sleeping) and how those could cause performance decrements. For example, athletes stated that "depression can keep them up so they aren't rested enough for practice" (women's basketball)

and “anxiety has made me feel sick to the point where I can’t swim or compete” (swimming and diving). Multiple athletes identified cognitive symptoms such as “overthinking” (men’s basketball), or ”overthinking or anxiety” (volleyball), or “overthinking can cause mistakes….” (football). Responses in this subtheme often reflected the connection between mental health conditions and performance through disruptions in concentration/focus (e.g., “if they are feeling depresses (sic) or anxious, it can effect (sic) the way they play their sport because that is usually constantly on their mind,” women’s basketball). Similar to the MHM and IZOF, this subtheme highlights the inverse relationship between sport performance and psychopathology, a decreased mood state, or a non-optimal amount of an emotion (e.g., anxiety) (Hanin, 1997, 2000; Robazza et al., 2004; Morgan, 1985), and how athletes with mental health concerns (e.g., depression) can experience disruptions in physical functioning (e.g., eating, sleep; Lebrun et al., 2018).

Demographic Clustering on Themes

Given the size and diversity (e.g., gender, race/ethnicity) of the sample, I examined the responses that comprised each subtheme to explore the extent to which there was demographic clustering (Teddlie & Tashakkori, 2003), or that athletes with certain demographic features provided responses more frequently within any specific subtheme. The spread of identities of athletes who shared the reason for their belief was consistent across subthemes. In other words, athletes with similar identities or from the same team did not provide reasons that fell disproportionately in any given subtheme, and no subtheme had responses that came disproportionately from athletes of any given identity or sport.

CHAPTER 4

DISCUSSION

Overall, as well as by gender, race/ethnicity, and sport type, 96.4% to 100.0% of the college student-athletes believed that mental health impacts sport performance. This overwhelming endorsement parallels psychological and physiological theories and research that have long suggested this connection (Donohue et al., 2018; Fletcher & Sarkar, 2012; Gross et al., 2018; Hanin, 1997; Marcora et al., 2009; Morgan, 1985; Reardon et al., 2019; Sabbe et al., 1999; Van Cutsem et al., 2017) and shows that college student-athletes' beliefs about, and experiences with, mental health and their sport performances are so aligned.

From their explanations as to why they believed this connection to be true, three themes and various subthemes emerged: (a) Cognitive Disruptions (Concentration, Confidence, Self-talk, Motivation, Mindset, and Decision-making), (b) the Stress of Being a Student-Athlete (Life Impacts Sport, Team Factors, Sport Impacts Mental Health), and (c) a Mind-Body Connection (Mind Correlates with Body, and Mental Health Symptoms Impact Performance) (see Table 1). These themes and subthemes shed light on the connection between mental health and sport performance in a way that has not been previously considered and communicate that college student-athletes think complexly and broadly about this relationship. They also show that student-athletes see the relationship as bi-directional (e.g., mental health impacts sport performance, and sport impacts mental health). The bi-directional nature of the connection is something worth researching specifically.

Fletcher and Sarkar (2012) proposed their theory of athlete resilience to explain the relationship between psychological resilience and optimal sport performance. Although not directly related to athletes' mental health status nor directly proposing that athlete mental health

underlies their performance, it is interesting to see how Fletcher and Sarkar's key components are reflected in the identified subthemes. Specifically, Concentration, Confidence, Motivation, Mindset, and perceived support by teammates (within Team Factors) seem to be consistent with the five factors that they identify as interacting together and influencing athletes' resilient response to stressors (Fletcher & Sarkar, 2012). Per the theory, these factors affect how athletes appraise their situation and have knowledge and control of their cognitions, which appears to align with what the athletes were describing in the subtheme of Decision-making. Viewed through the lens of Fletcher and Sarkar's (2012) theory of resilience, the college student-athletes are describing how mental health concerns, in varying ways, undermine athletes' ability to be resilient and perform optimally.

Of the five factors, student-athletes seems to find concentration particularly salient because of the frequency with which it showed up not only on its own, but also as something impacted by other subthemes. For example, responses explained that when life stressors intersect with sport, they can decrease concentration and thus performance. A similar connection arose when athlete experience symptoms of mental health: those symptoms distract the athlete and both the symptoms themselves and the resulting loss of focus decrease performance. The implication of concentration beyond its direct impact on performance is consistent with how central concentration is understood to be to both motor learning and motor pattern execution, and how difficult concentration is understood to be to maintain (Magill & Anderson, 2010; Wulf, 2013).

From the perspectives of the MHM and the IZOF Model, there is a direct connection between the mind and the body. Further, these theories argue that athletes' mood states, psychopathology, and emotions all can influence performances – either positively or negatively

depending on the mood or amount of an emotion experienced (Hanin, 1997; Morgan, 1985). Corroboration for these ideas comes from several of the subthemes that emerged from the athletes' responses. Athletes expressed that the symptoms of mental health can decrease sport performance, which specifically aligns with the MHM's inverse relationship between sport performance, and mood states and psychopathology (Morgan, 1985). The IZOF Model theorized that an athlete's inability to maintain their personally optimal amount of an emotion (e.g., anger) would produce a non-optimal performance. In parallel, student-athletes indicated the disruption of emotional stability (within Mindset) and the interference of mental health symptoms would decrease sport performance. Although the MHM and IZOF have decades long lines of research that support them (Morgan, 1985; Morgan et al., 1987; Ruiz et al., 2015), my study extends on these findings by validating the models' claims from the athletes' perspectives. This validation suggests that college student-athletes agree with Morgan and Hanin: where the mind goes, the body goes, for better or worse.

The fields of neuropsychology and physiology also provide a lens through which researchers have examined the direct connection between mind and body, between mental health and sport performance (Marcora et al., 2009; Sabbe et al., 1999; Van Cutsem et al., 2017). Mental fatigue has been shown to decrease endurance performance through increased ratings of perceived exertion (Van Cutsem et al., 2017), whereas clinical levels of depression seem to reduce reaction time and velocity, and increasingly so as demands of complexity and accuracy increase (Sabbe et al., 1999). Similarly, and not surprisingly, college student-athletes qualitatively corroborate these physiological laboratory findings (Marcora et al., 2009; Sabbe et al., 1999; Van Cutsem et al., 2017): sport performance is directly and negatively impacted by negative psychological experiences, be they mental fatigue, clinical levels of depression, or other

symptoms of mental health concerns.

Further, the subthemes that emerged in the most closely similar research – two qualitative studies exploring depression as an outcome of sport – are reflected by this sample. All three samples of high-level athletes reported decreased motivation that decreased performance, as well as life stressors impacting sport and the existence of a direct mind-body connection (Doherty et al., 2016; Lebrun et al., 2018). Additionally, self-talk was salient to two samples (Doherty et al., 2016), whereas the impact the symptoms of mental health concerns (e.g., anxiety, decreased appetite, trouble sleeping) have on sport performance was salient to a different pair (Lebrun et al., 2018). Overall, the similarity in themes across samples suggests some level of universality in the ways that mental health impacts sport performance among high-level athletes who are experiencing mental health concerns.

This high level of endorsement across demographic and sport-type variables, the seeming universality of experience, and bi-directional relationship between mental health and sport performance has meaningful implications for providing mental health and performance psychology services to college student-athletes. Treatment must be open to, and directed at, any antecedent to mental health concerns, be that life or sport stressors, and any method through which the connection occurs (e.g., concentration, team factors). Still, the potential for similar experience does not require it: not every student-athlete who experiences mental health concerns will lose concentration, and not every student-athlete who experiences a spell of decreased performance will develop mental health concerns. Instead, the subthemes above may be a useful lens for screening questions, case conceptualizations, or expectations of what sport psychology providers may hear from student-athletes. Additionally, the considerable overlap between subthemes and resilience theory of athletes (Fletcher & Sarkar, 2012) suggests that treatment to

prompt, address, or encourage resilience may be particularly effective.

Beyond treatment as commonly defined, education about mental health and its impact on sport performance could be an effective way to lower barriers and encourage help-seeking. My data indicate broad acceptance, and understanding, of the mental health-sport performance connection among athletes, yet there remain considerable perceived barriers (Arnold & Fletcher, 2012; Gulliver et al, 2012; Moreland et al., 2018; Steinfeldt et al., 2009; Steinfeldt et al., 2011; Wilkerson et al., 2020) that likely contribute to the lower levels of help-seeking behaviors seen among athletes (Chow et al., 2020; Steinfeldt et al., 2009; Steinfeldt et al., 2011). For example, coaches' attitudes toward and support for seeking psychological help and desire for control of the team environment, athletic trainers' willingness to refer to athletes to psychology services, and administrators' perception of sport psychology and athletes who use mental health services were described as barriers to college student-athletes' utilization of mental health services (Moreland et al., 2018). Thus, educational efforts could target coaching, medical, and administrative staffs to help increase their mental health literacy and confidence in mental health treatments, and reduce negative attitudes they may hold toward individuals who seek care. Such stakeholders may become increasingly amenable to advocating for athletes' mental health as they learn more about the perceived connection between athletes' psychological well-being and sport performance.

Alternatively, similar education may be beneficial to provide to student-athletes. Hesitance toward services may reflect a lack of belief or understanding that mental health concerns are, or could manifest as, performance decrements, in addition to a stigma against mental health or services, or perceptions of individual, cultural, or structural barriers. Sport psychologists may do well to educate athletes, particularly in groups or as teams, about

symptoms of mental health concerns, how these symptoms can lead to performance decrements, and ways to support teammates to seek services as needed. As earlier research has suggested, a clear understanding that mental health does impact sport performance may help increase help-seeking behaviors (Gulliver et al., 2012; Lebrun et al., 2018).

My study is the first to examine student-athletes' perceptions of the relationship between mental health and sport performance, doing so from a mixed methods perspective. Further, unlike many prior studies on athlete mental health and sport performance (e.g., Donohue et al., 2018; Morgan, 1985; Morgan et al., 1987; Gross et al., 2018), my sample was diverse across gender and race/ethnicity and represented the larger population of the athletic department from which it was drawn. Despite these strengths, there were several limitations within my study that warrant discussion. First, as shown by presented responses rates for each question, selection bias may have been present as decreasing numbers of athletes responded to other sections. Typically, selection bias impacts self-report data through expectations of social desirability or separately, volunteerism (Caputo, 2017). Therefore, my data may under (or over) represent the views of student-athletes in relation to these questions. However, while important to mention, this attrition is not a critical flaw in the study as the significant purpose of maintaining diversity of voices with regard to all included demographic and sport-type variables was achieved across each level of data collection, question type, and type of data analysis.

Second, I used open-ended questions to obtain student-athletes' perceptions of the mental health-sport performance connection, which precluded follow-up or additional prompting by the researchers that might have led to more in-depth responses or greater clarity on some responses. What may have been lost in some depth or clarification was balanced by the breadth of responses obtained (see Papathomas et al., 2018). This limitation led into a different one: the ontological

and epistemological relative stance taken by researchers. Whereas relativism reflects and allows the diversity of perspective that exists in the world, it also precludes two people from ever fully sharing the same perspective. Therefore, the lack of opportunity to clarify may have further exacerbated the inability to share the same perspective, complicated the researchers' efforts to understand and analyze the participants' responses, and impacted the creditability and confirmability of the conclusions (Shenton, 2004). However, it can also be argued that relativism is a strength of this study, as participants were allowed to interpret and respond to the question fully from their own perspective rather than through the identities and related len(s) of the researchers. Finally, my sample was drawn from a single NCAA Division I athletic department where the athletes have easy, free access to performance and mental health care through their team's sport psychologist. For example, athletes at this institution undergo annual mental health screening (self-report) and follow-up interviews (for those identified as at-risk), and participate in annual mental health presentations in which they discuss stigma, help-seeking, and barriers. It may be that this access and education has fostered the belief that mental health and performance are connected in a way that would not be present among student-athletes who do not receive such services. Additional research is needed to determine the extent to which my findings generalize and if they may be vary based on access, and exposure, to sport psychology and mental health services.

Although some have been provided previously, additional directions for future research exist. First, in addition to replicating this study with other samples of college student-athletes, extending it to samples of NCAA coaches would be illuminating. That is, do athletes and coaches hold similar perspectives on whether and how mental health impacts sport performance? Such studies might not be limited to the question of mental health impacting sport performance,

but also could cover athletes' and coaches' beliefs about, and experiences with, stigmas, barriers, and mental health literacy (Jorm et al., 1997). Matched pairs of athletes and coaches on the same team would be particularly meaningful, especially as it relates to determining how knowledge about mental health; sport environments, particularly those created by coaches; and personal stigma interplay to impact help-seeking behaviors. Adopting this approach would be particularly novel, as most research on stigmas and help-seeking behaviors in athlete populations do not ask about knowledge, attitudes, or beliefs about mental health, or its impact on sport performance (e.g., Biggin et al., 2017; Gulliver et al., 2012; López & Levy, 2013; Moreland et al., 2018; Steinfeldt et al., 2009; Steinfeldt et al., 2011; Wilkerson et al., 2020). In such studies, researchers also might examine variables such as previous receipt of services, formal diagnosis, and/or treatment, either before or during college, as well as proximity to family members, friends, or romantic partners who are experiencing mental health concerns, and exploration of how these experiences and exposure impact the dependent variables of endorsement, or identification of additional or alternative themes of how mental health impacts sport performance (Jorm et al., 1997, 2000). Finally, future studies should continue to include diverse gender and race/ethnic identities to understand their specific beliefs and lived experiences surrounding mental health in sport environments and to isolate what factors potentiate awareness of this connection, reduce stigma around mental health, or even limit the translation of this awareness into seeking help as needed.

This study represents the first formal attempt to explore athletes' perceptions of how mental health impacts sport performance, doing so by sampling the gender and racial/ethnic diversity that is represented among NCAA Division I student-athletes. Overall, as well as by gender, race, and sport type, the student-athletes nearly universally believed that mental health

impacts sport performance. Through their open-ended responses, they identified disruptions in concentration, confidence, self-talk, motivation, mindset, and decision-making abilities as reasons for the connection. Further, they identified that the stress of being a student-athlete also decreases sport performance, particularly when life impacts sport, sport impacts mental health, or team factors such a team environment or perceived social support are at play. Finally, paralleling some of the earliest theories connecting mental health to sport performance, the student-athletes drew a connection between the mind and body such that where the mind goes, the body goes, especially when the mind experiences symptoms of mental health concerns. The universality of endorsement and diversity of voices in each subtheme suggests this topic is worthy of further exploration to develop a knowledge base that can guide interventions and treatment that will help athletes perform optimally, in sport, academics, and life.

APPENDIX

SURVEY OF COLLEGE STUDENT-ATHLETES

1. Gender
    a. Man
    b. Woman
    c. Transgender
    d. Non-binary
    e. Prefer not to share
    f. Prefer to self-identify
2. Race/ethnicity
    a. White
    b. Black/African American
    c. Hispanic/Latinx
    d. Asian/Asian American
    e. Native American
    f. Native Hawaiian/Pacific Islanders
    g. Bi/Multi-racial
    h. Prefer not to share
    i. Prefer to self-identify
3. Sport
    a. Men's Basketball
    b. Women's Basketball
    c. Cross-Country/Track and Field
    d. Football
    e. Men's Golf
    f. Women's Golf
    g. Soccer
    h. Softball
    i. Swimming and Diving
    j. Tennis
    k. Volleyball
4. Do you think mental health affects student athletes' sport performances?
    a. Yes

i. [If YES for 4, the follow question will be asked] Can you tell us the ways in which you believe mental health can affect a student athletes' performances?"

b. No

i. [if NO for 4, the following question will be asked] Can you tell us why you believe that mental health does NOT affect a student athletes' performances?"

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